

1. How do you perceive an NPK biosensor as for the detection of NPK, or either compound?

I would say that as an organic farm, this machine (the NPK biosensor) would be a wrong target. Organic farms will not be benefited by such device. Perhaps, there is a farm that uses chemicals and all, they may be in need of such data. For example, for nitrogen, your device can only sense nitrate. You have stated that nitrite is handicapped, and neither ammonia nor bicarbonate ion is measurable. Ammonia will be converted to nitrite to become nitrate by bacteria in soil right? Thus, measuring ammonia is also important, because as long as here is ammonia, theoretically, I would not need to further add nitrate.

2. So what if they can measure NO_3 , NO_2 ...?

I still don't think it can be sufficient a measurement. I still would need to know the total nitrogen content and ratios in soil. It is the same for other nutrients such as potassium and phosphate.

3. So the accuracy of the device would not be as important for you?

My point is that, no matter how accurate it is, the current chemicals that you can detect is not be helpful for me. However, if you can tell me the total nutrition content, then yes, it would be helpful.

4. How much time would allow for the results of detection?

Up to 24 hours would not be a problem.

Organic farmers understand that farming requires time. For intensive farming, time may be an issue. Organic farmers understand that the cycles require time. Even if you tell me that the sensor is fast, like 60 seconds, or 60 minutes, the speed is really not that needed.

5. So does it mean you don't check the soil quality at your farm?

No, once a year I check the nutrient content in my farm, but I believe the microorganisms in soil are producing enough. I just want to check if it is sufficient. I don't really mind about the efficiency of production, it's more about the quality.

6. Do you know how the soil quality is measured?

No, not very much. I know that they get some samples and bring to lab. It takes around 2 weeks to 1 month for them to deliver the results to me.

7. So we use bacterial cells, they may have mutations that cause the cells to have toxin but if you know that it can measure the NPK content, would you still use it?

Interview Transcript

Well, I don't even need it from the beginning, if you further add that it may be harmful, I wouldn't even considering it.

8. If HK were to have biosensors introduced into the field, do you think that the government should implement some kind of policies or regulations on biosensors?

I think this question is too difficult to ask farmers. As what we usually care about the cost, and what kind of measurement the device will give us, we do not really care about the mechanism of the device, but if you tell me that the device could harm the plant, the insects, yes, I will care. But honestly, I am not sure specifically what kind of harm it will bring, to what degree that it is harmful, so I can't properly answer your question